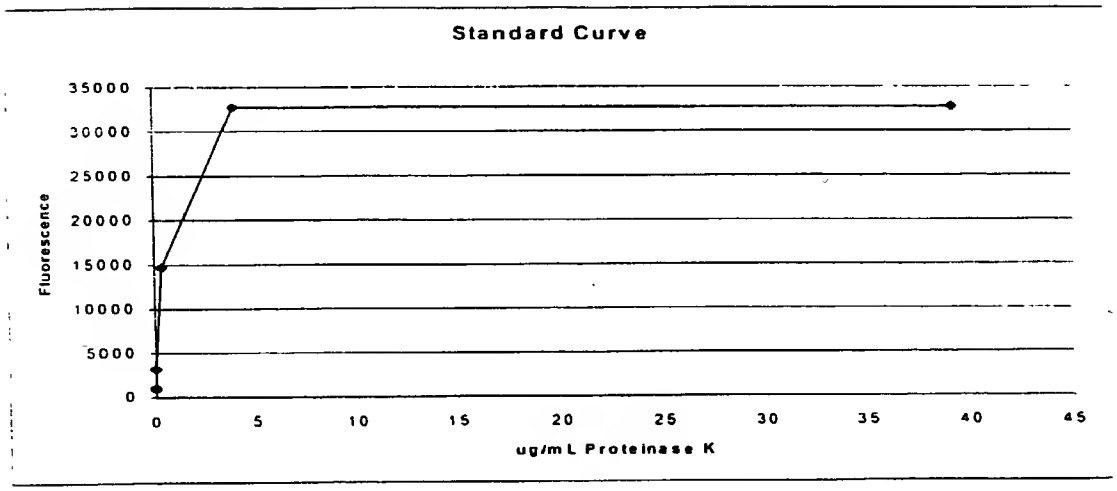

Standard Curve
35000
30000
25000
20000
15000
10000
5000
0
Fluorescence
0
5
10
15
20
25
30
35
40
45
ug/mL Proteinase K

Figure 1

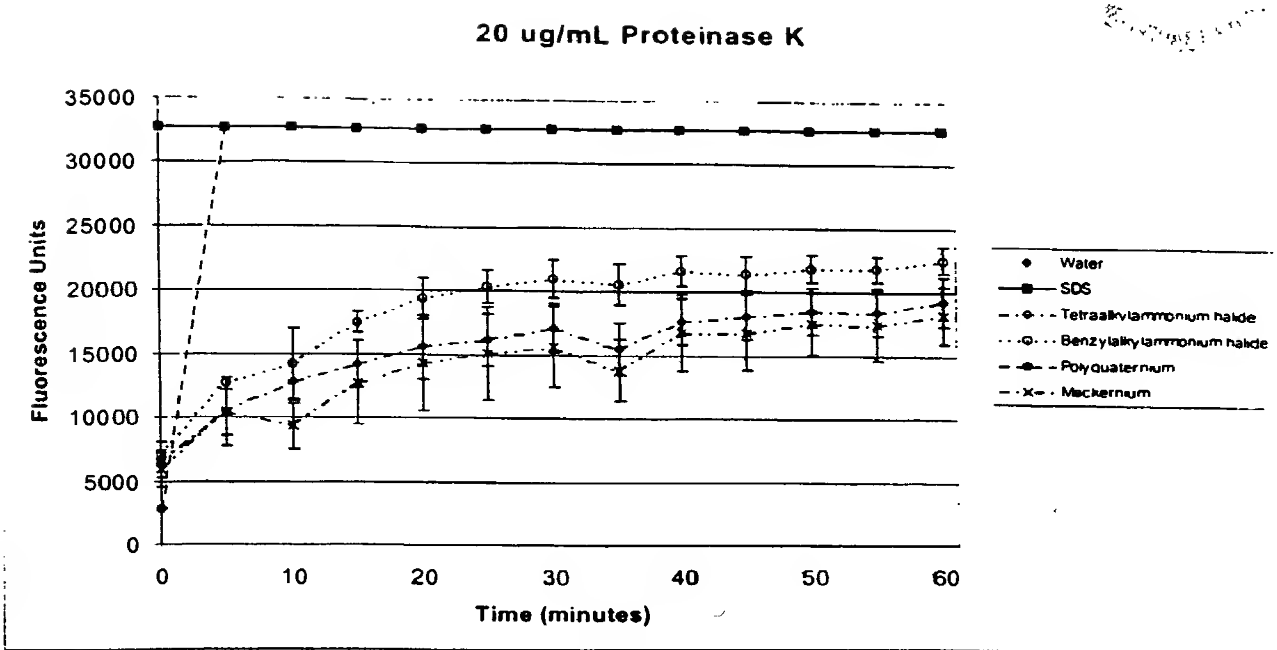


Figure 2A

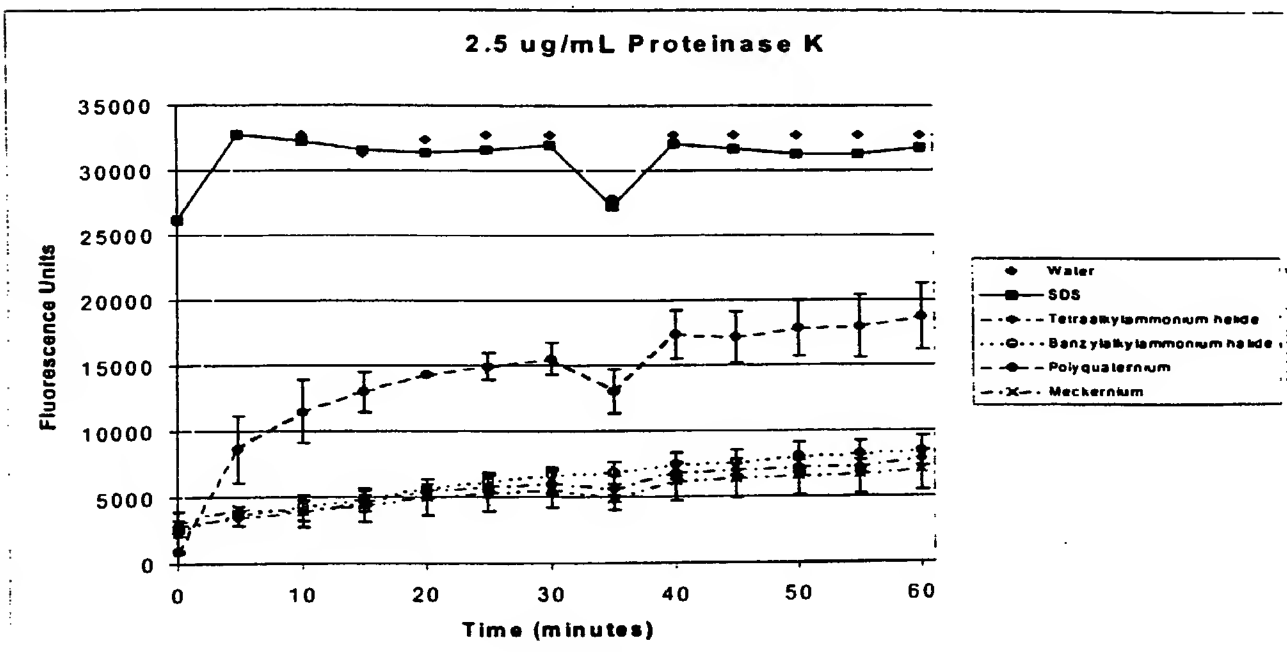


Figure 2B

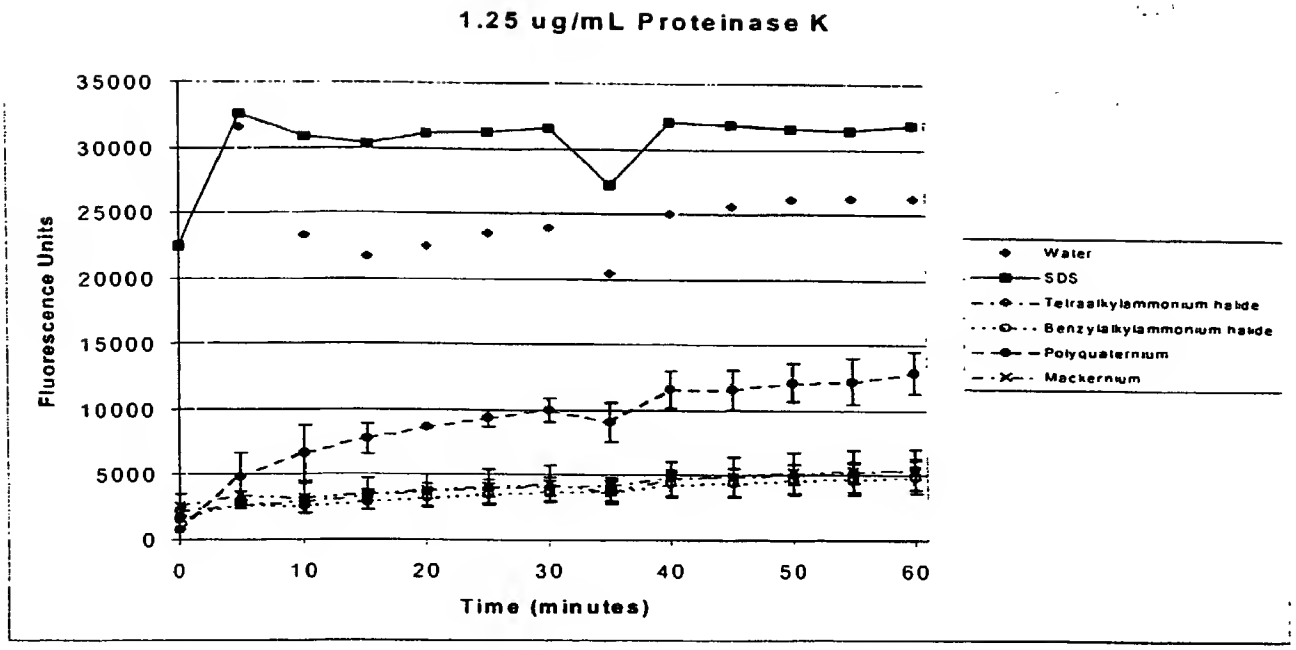

1.25 ug/mL Proteinase K
Fluorescence Units
35000
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
Time (minutes)
Water
SDS
Tetraalkylammonium halide
Benzylalkylammonium halide
Polyquaternium
Mackernium

Figure 2C

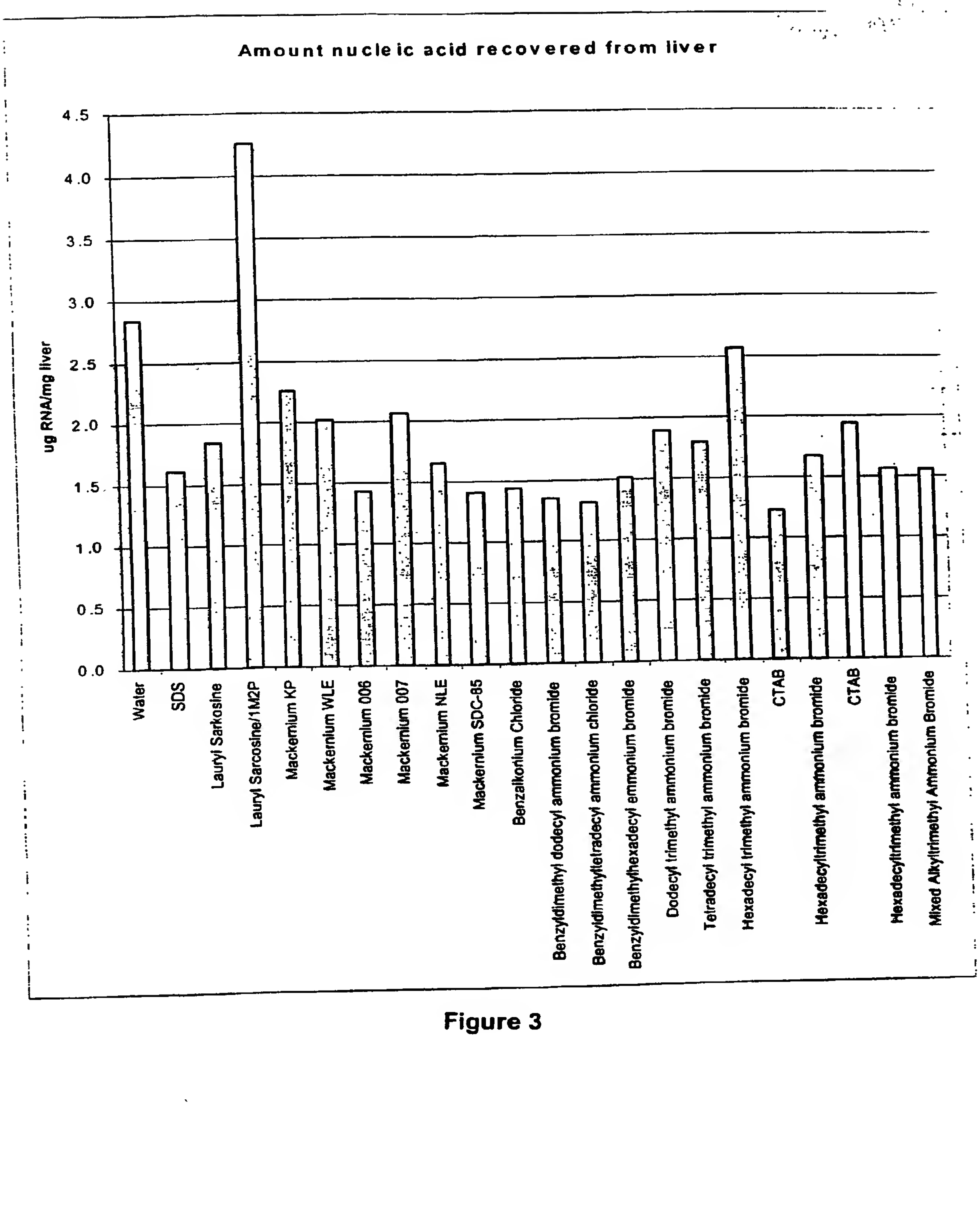

Amount nucleic acid recovered from liver
ug RNA/mg liver
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Water
SDS
Lauryl Sarkosine
Lauryl Sarcosine/1M2P
Mackernium KP
Mackernium WLE
Mackernium 006
Mackernium 007
Mackernium NLE
Mackernium SDC-85
Benzalkonium Chloride
Benzyldimethyl dodecyl ammonium bromide
Benzyldimethyltetradecyl ammonium chloride
Benzyldimethylhexadecyl ammonium bromide
Dodecyl trimethyl ammonium bromide
Tetradecyl trimethyl ammonium bromide
Hexadecyl trimethyl ammonium bromide
CTAB
Hexadecyltrimethyl ammonium bromide
CTAB
Hexadecyltrimethyl ammonium bromide
Mixed Alkyltrimethyl Ammonium Bromide

Figure 3

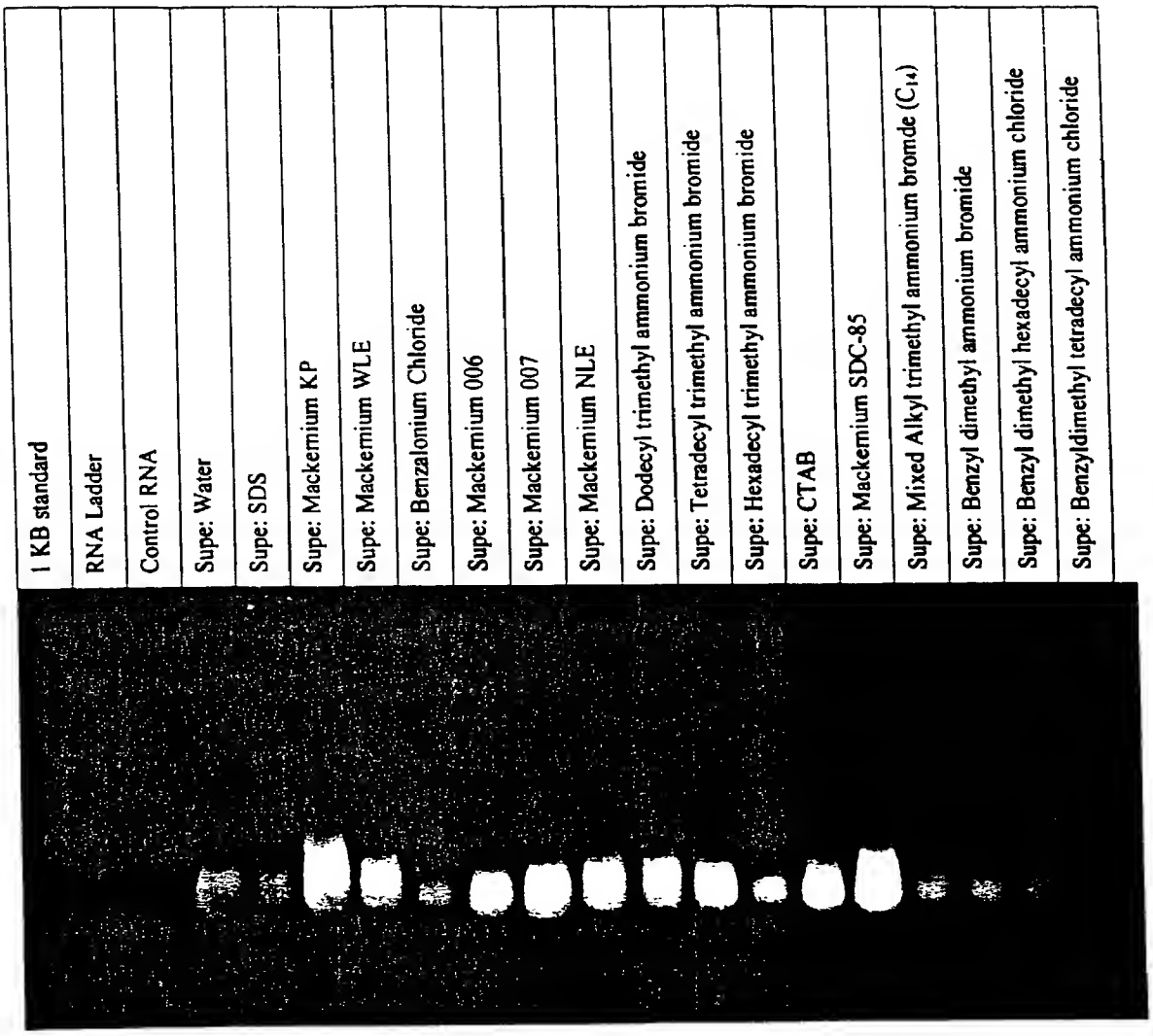


Figure 4

Figure 4 (cont.)

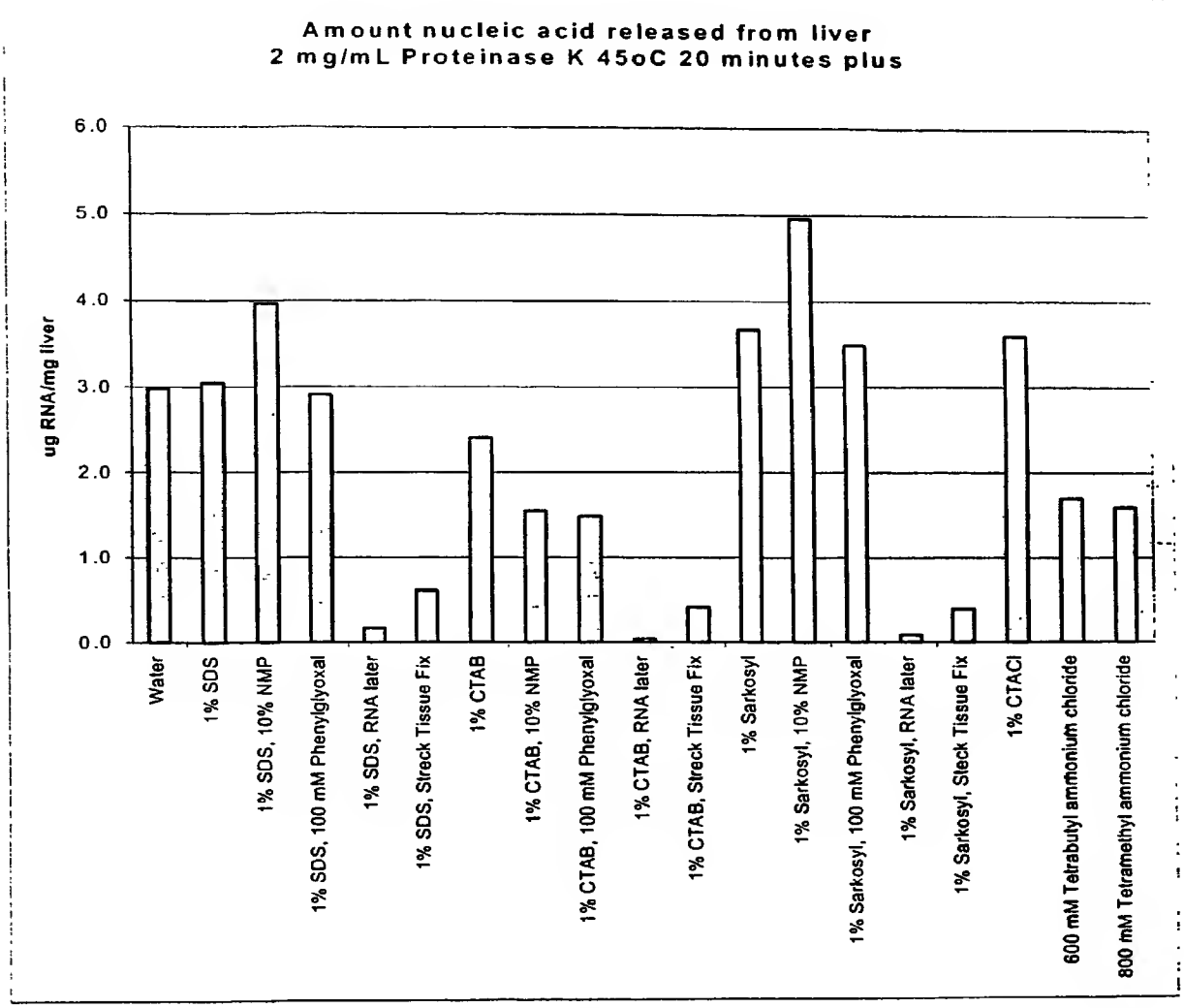


Figure 5

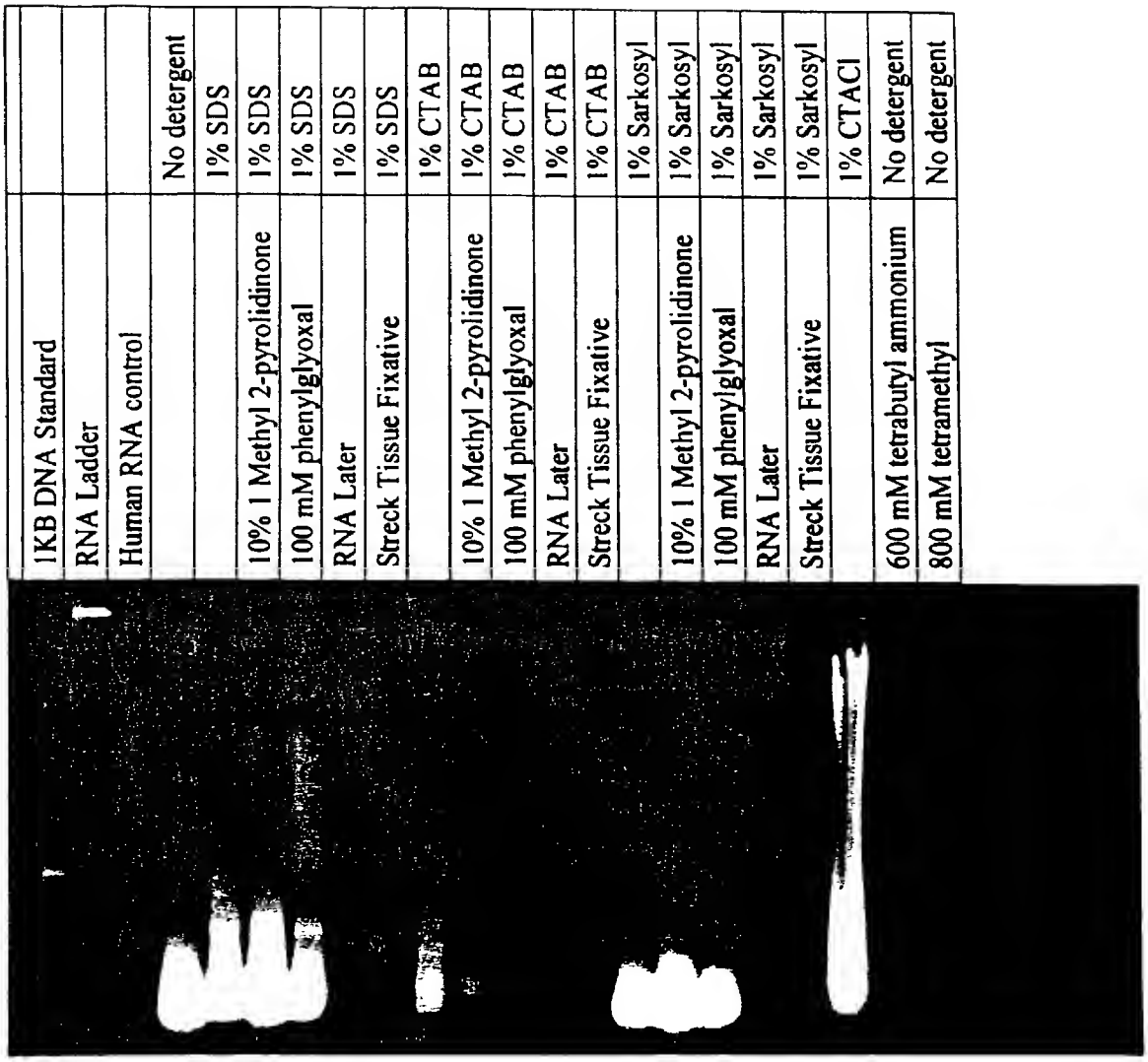


Figure 6

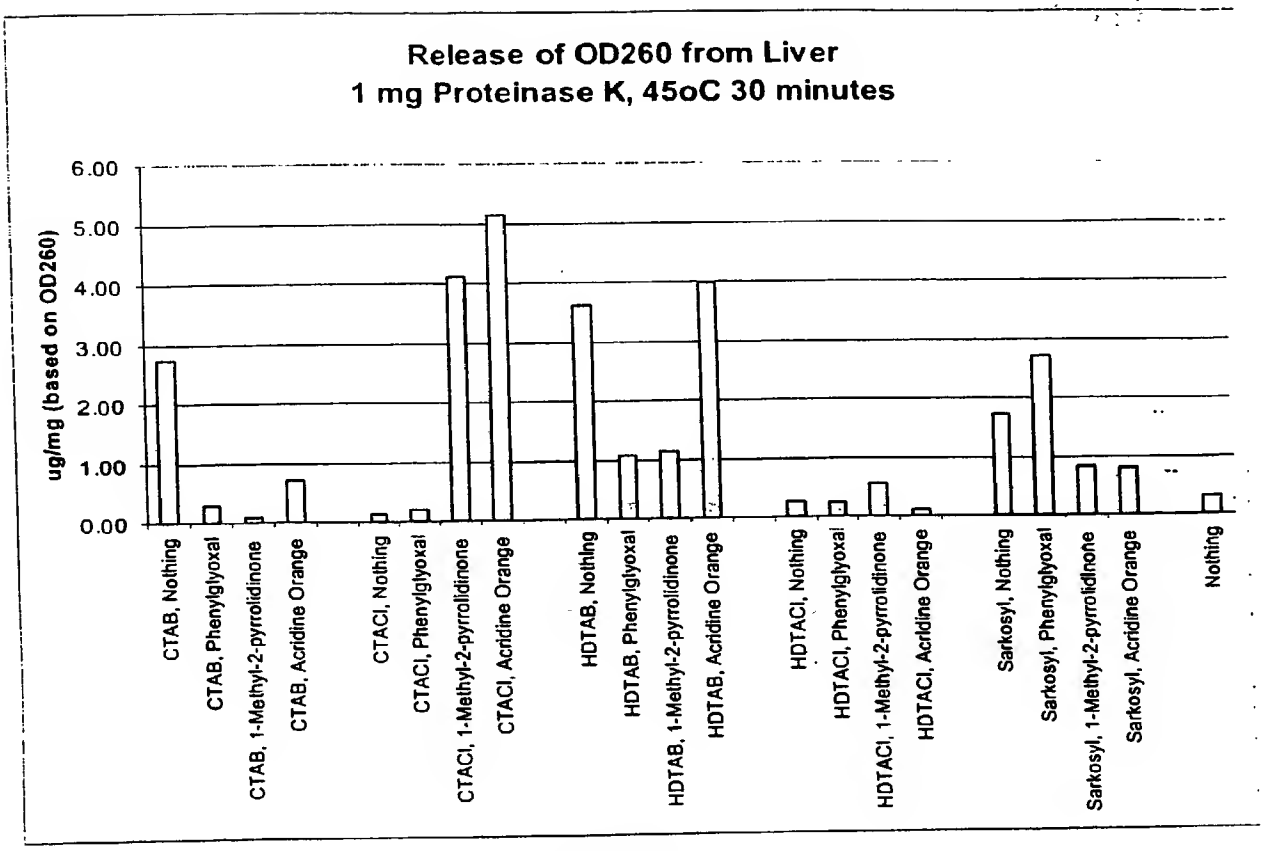


Figure 7

Figure 8

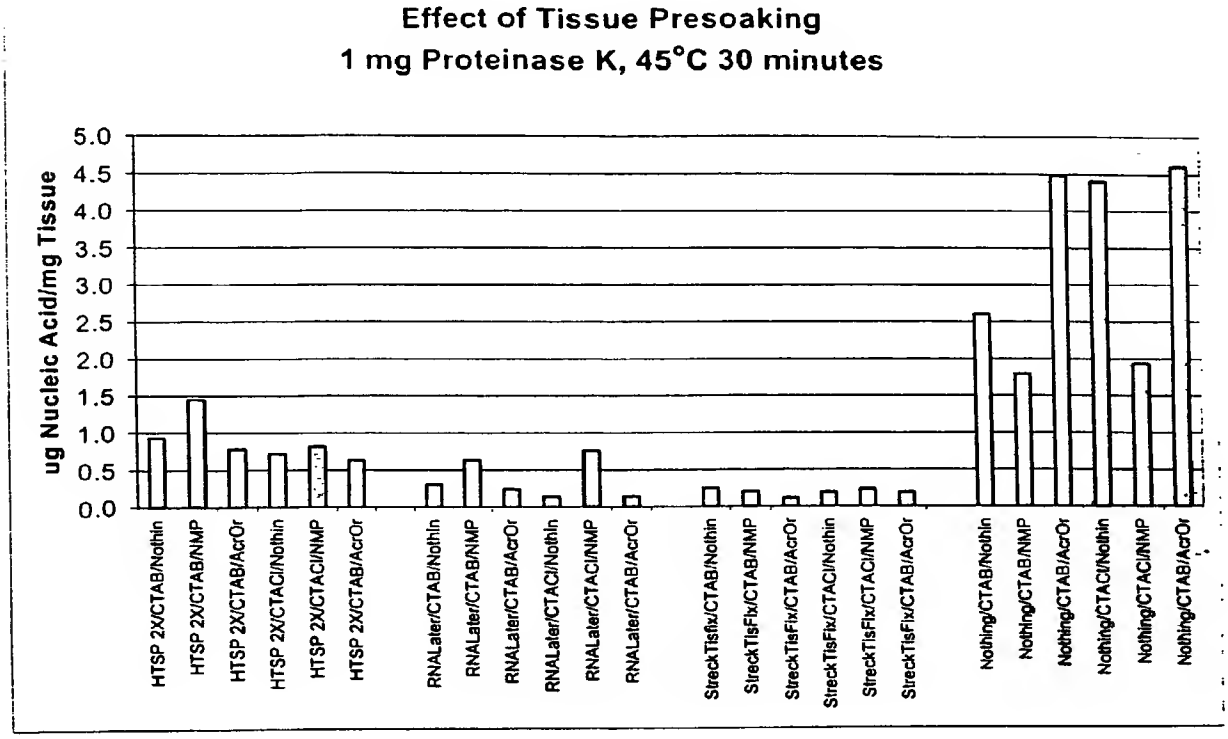


Figure 9

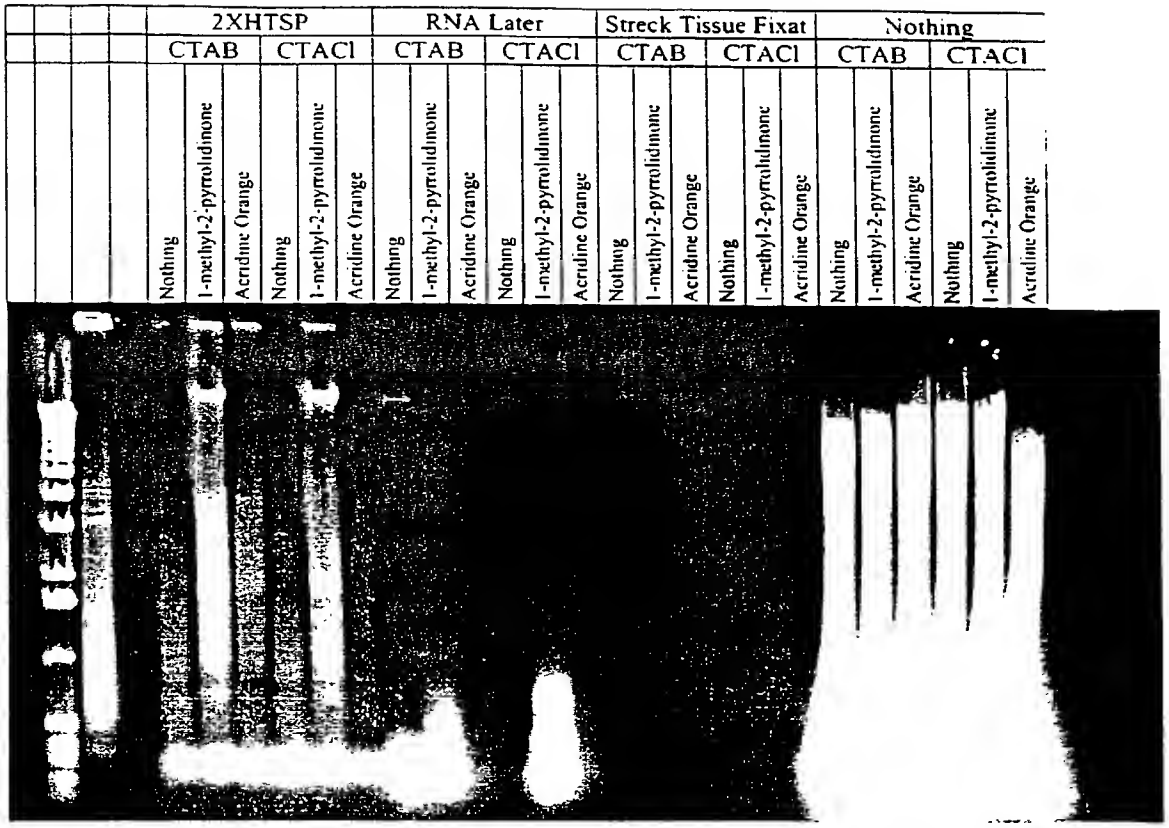


Figure 10

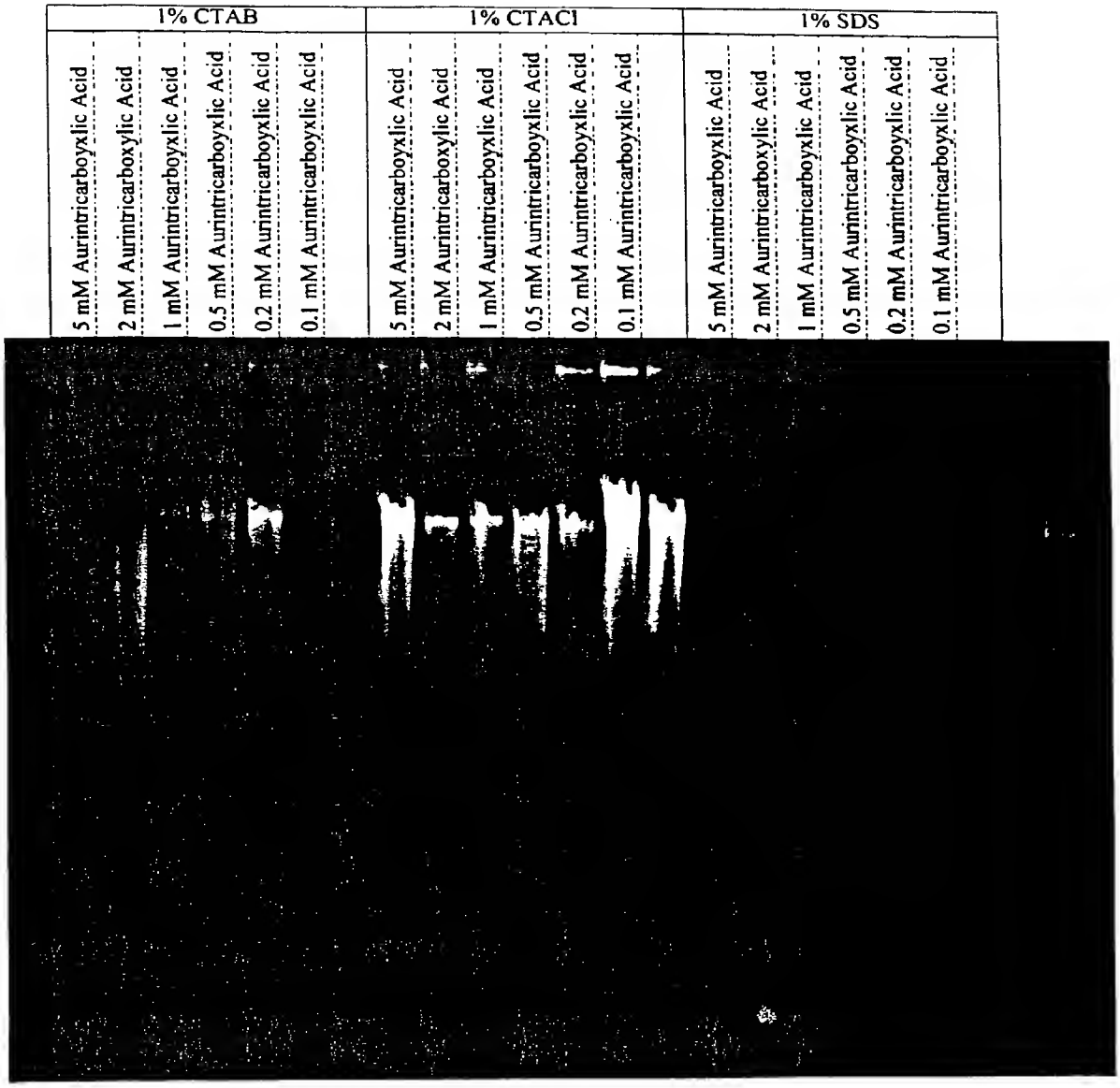

1% CTAB
5 mM Aurintricarboyxlic Acid
2 mM Aurintricarboxylic Acid
1 mM Aurintricarboyxlic Acid
0.5 mM Aurintricarboyxlic Acid
0.2 mM Aurintricarboyxlic Acid
0.1 mM Aurintricarboyxlic Acid
1% CTACl
5 mM Aurintricarboyxlic Acid
2 mM Aurintricarboxylic Acid
1 mM Aurintricarboyxlic Acid
0.5 mM Aurintricarboyxlic Acid
0.2 mM Aurintricarboyxlic Acid
0.1 mM Aurintricarboyxlic Acid
1% SDS
5 mM Aurintricarboyxlic Acid
2 mM Aurintricarboxylic Acid
1 mM Aurintricarboyxlic Acid
0.5 mM Aurintricarboyxlic Acid
0.2 mM Aurintricarboyxlic Acid
0.1 mM Aurintricarboyxlic Acid

Figure 11

Dodecyltrimethylammonium bromide
Tetradecyltrimethylammonium bromide
Cetyltrimethylammonium bromide
Cetyltrimethylammonium chloride
Hexadecyltrimethylammonium bromide
Hexadecyltrimethylammonium bromide
Machernium 006 (Polyquaternium 6)
Mackernium KP (Olealkonium chloride)
Mackernium NLE (Quaternium-84)
Mackernium 007 (Polyquaternium-7)
Mackernium Stearalkonium SDC85 Chloride
Benzalkonium chloride
SDS
Nothing

Figure 12

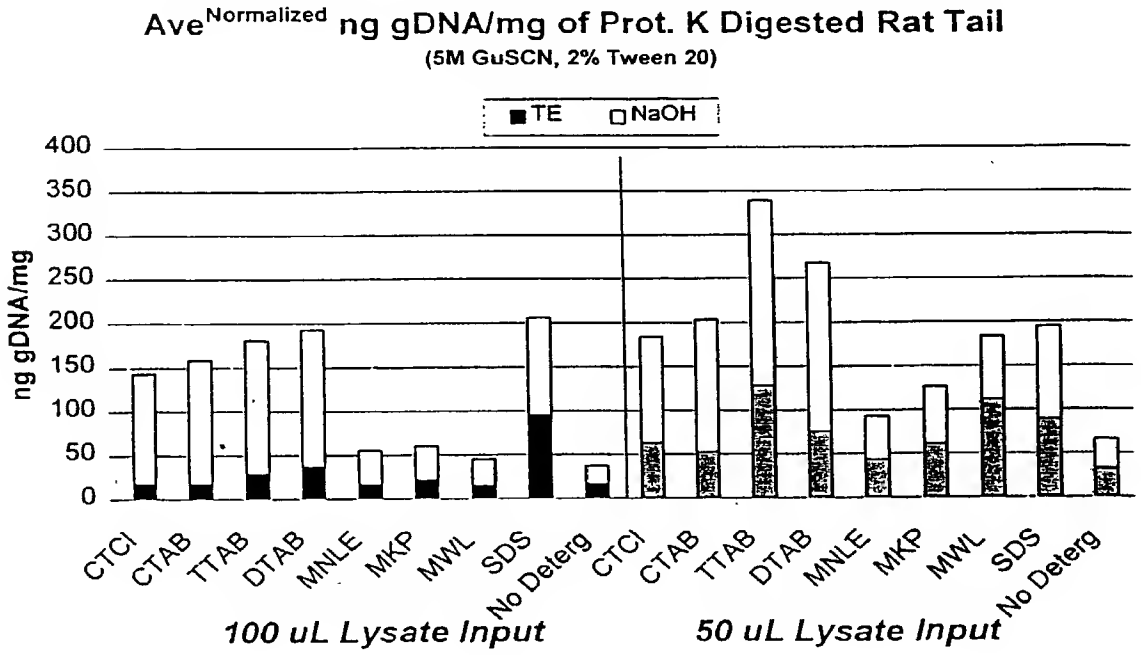

Ave Normalized ng gDNA/mg of Prot. K Digested Rat Tail
(5M GuSCN, 2% Tween 20)
TE
NaOH
ng gDNA/mg
400
350
300
250
200
150
100
50
0
CTCl
CTAB
TTAB
DTAB
MNLE
MKP
MWL
SDS
No Deterg
100 uL Lysate Input
50 uL Lysate Input

Figure 13

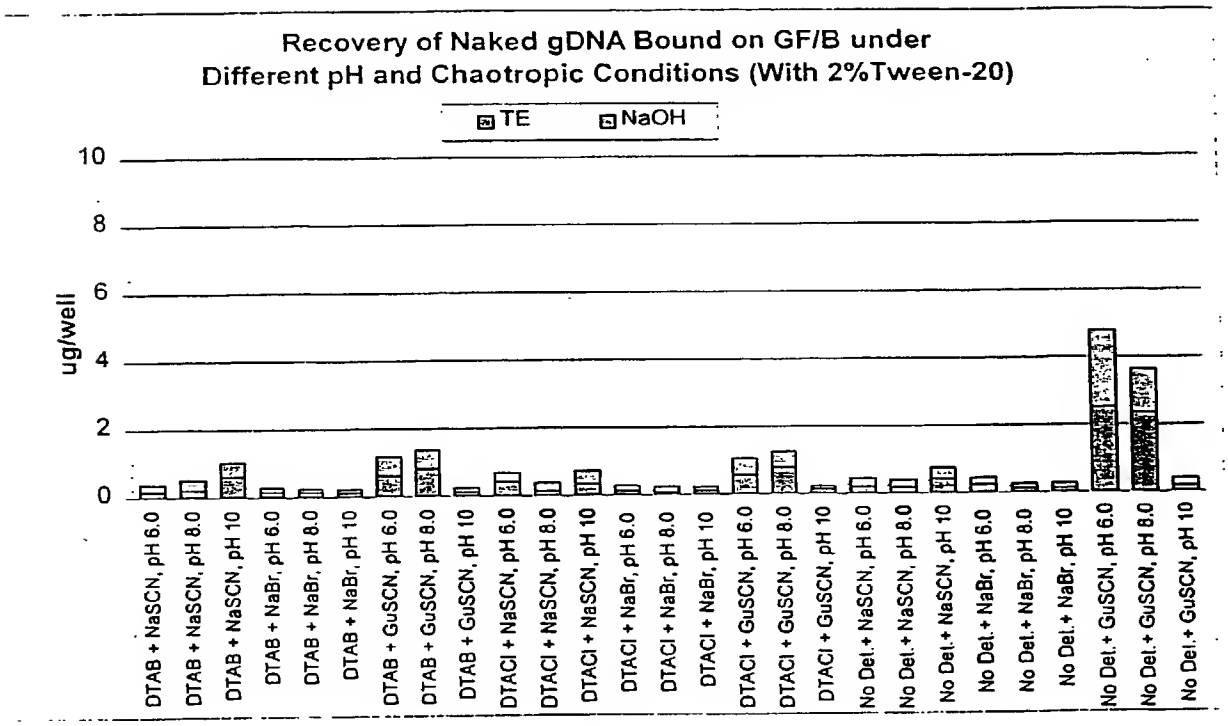

Recovery of Naked gDNA Bound on GF/B under
Different pH and Chaotropic Conditions (With 2%Tween-20)
TE
NaOH
ug/well
10
8
6
4
2
0
DTAB + NaSCN, pH 6.0
DTAB + NaSCN, pH 8.0
DTAB + NaSCN, pH 10
DTAB + NaBr, pH 6.0
DTAB + NaBr, pH 8.0
DTAB + NaBr, pH 10
DTAB + GuSCN, pH 6.0
DTAB + GuSCN, pH 8.0
DTAB + GuSCN, pH 10
DTACl + NaSCN, pH 6.0
DTACl + NaSCN, pH 8.0
DTACl + NaSCN, pH 10
DTACl + NaBr, pH 6.0
DTACl + NaBr, pH 8.0
DTACl + NaBr, pH 10
DTACl + GuSCN, pH 6.0
DTACl + GuSCN, pH 8.0
DTACl + GuSCN, pH 10
No Del.+ NaSCN, pH 6.0
No Del.+ NaSCN, pH 8.0
No Del.+ NaSCN, pH 10
No Del.+ NaBr, pH 6.0
No Del.+ NaBr, pH 8.0
No Del.+ NaBr, pH 10
No Del.+ GuSCN, pH 6.0
No Del.+ GuSCN, pH 8.0
No Del.+ GuSCN, pH 10

Figure 14

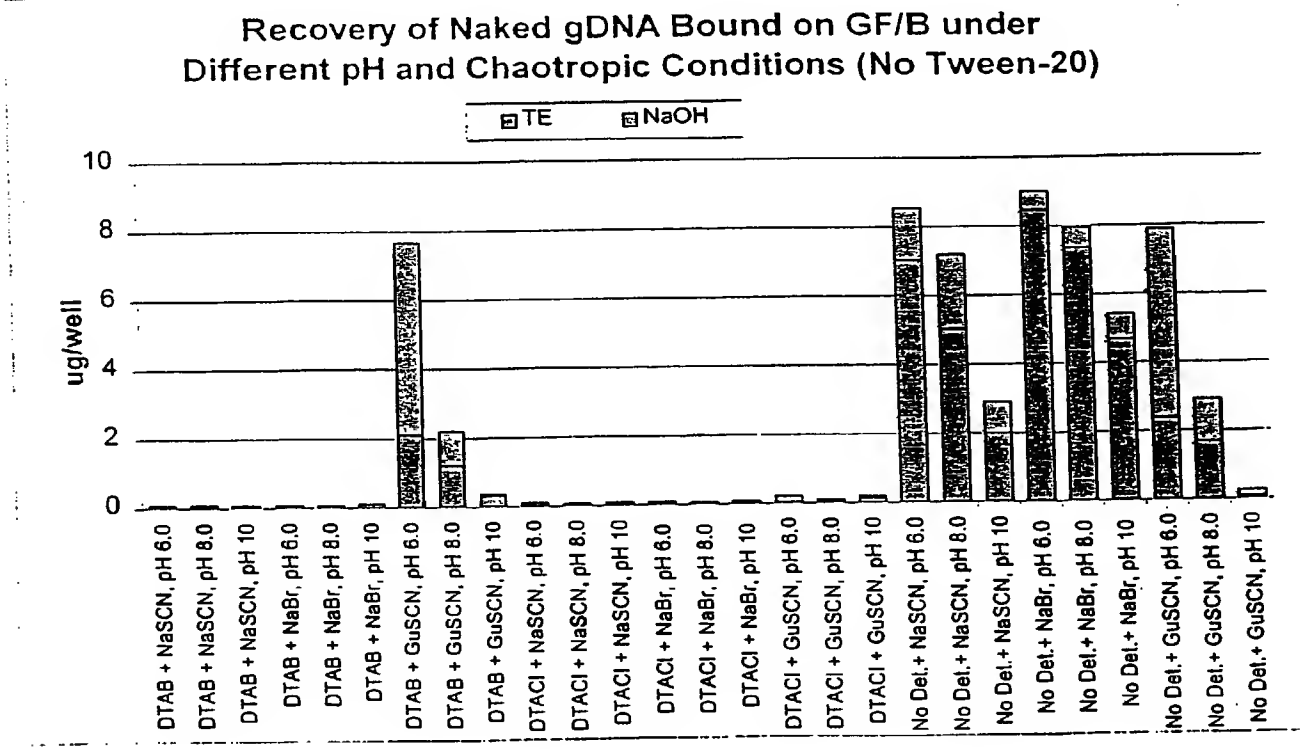

Recovery of Naked gDNA Bound on GF/B under Different pH and Chaotropic Conditions (No Tween-20)
TE
NaOH
ug/well
10
8
6
4
2
0
DTAB + NaSCN, pH 6.0
DTAB + NaSCN, pH 8.0
DTAB + NaSCN, pH 10
DTAB + NaBr, pH 6.0
DTAB + NaBr, pH 8.0
DTAB + NaBr, pH 10
DTAB + GuSCN, pH 6.0
DTAB + GuSCN, pH 8.0
DTAB + GuSCN, pH 10
DTACl + NaSCN, pH 6.0
DTACl + NaSCN, pH 8.0
DTACl + NaSCN, pH 10
DTACl + NaBr, pH 6.0
DTACl + NaBr, pH 8.0
DTACl + NaBr, pH 10
DTACl + GuSCN, pH 6.0
DTACl + GuSCN, pH 8.0
DTACl + GuSCN, pH 10
No Del.+ NaSCN, pH 6.0
No Del.+ NaSCN, pH 8.0
No Del.+ NaSCN, pH 10
No Del.+ NaBr, pH 6.0
No Del.+ NaBr, pH 8.0
No Del.+ NaBr, pH 10
No Del.+ GuSCN, pH 6.0
No Del.+ GuSCN, pH 8.0
No Del.+ GuSCN, pH 10

Figure 15

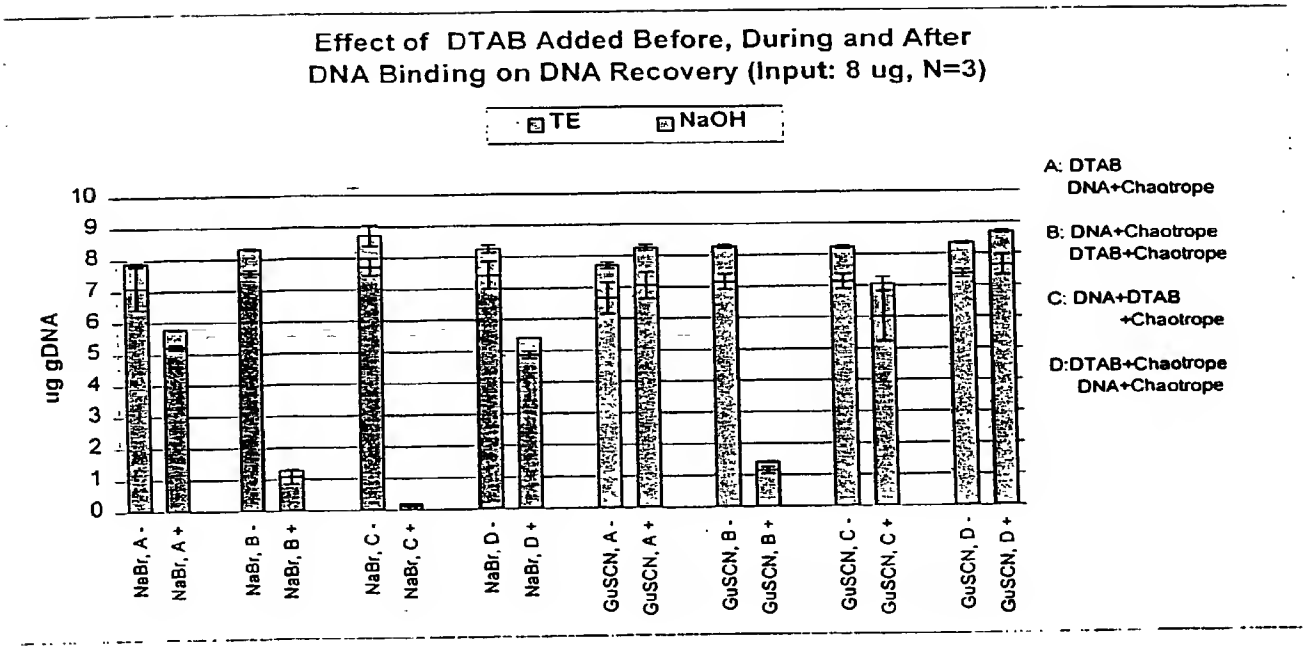

Effect of DTAB Added Before, During and After
DNA Binding on DNA Recovery (Input: 8 ug, N=3)
TE
NaOH
ug gDNA
10
9
8
7
6
5
4
3
2
1
0
NaBr, A -
NaBr, A +
NaBr, B -
NaBr, B +
NaBr, C -
NaBr, C +
NaBr, D -
NaBr, D +
GuSCN, A -
GuSCN, A +
GuSCN, B -
GuSCN, B +
GuSCN, C -
GuSCN, C +
GuSCN, D -
GuSCN, D +
A: DTAB
DNA+Chaotrope
B: DNA+Chaotrope
DTAB+Chaotrope
C: DNA+DTAB
+Chaotrope
D:DTAB+Chaotrope
DNA+Chaotrope

Figure 16

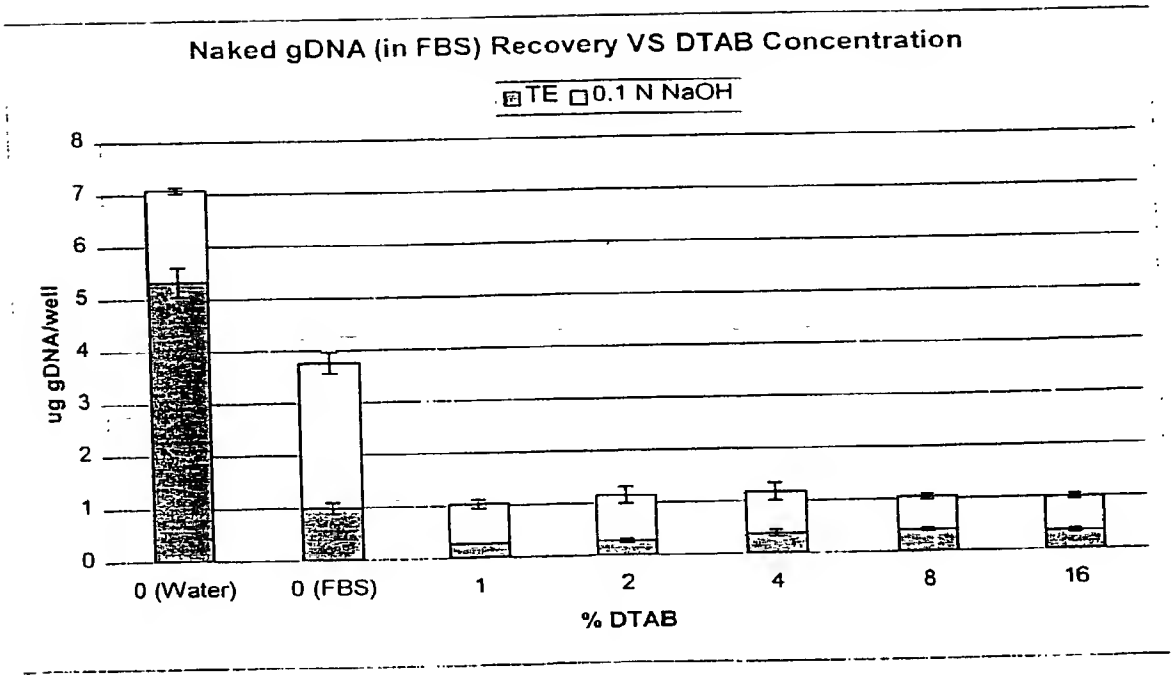


Figure 17

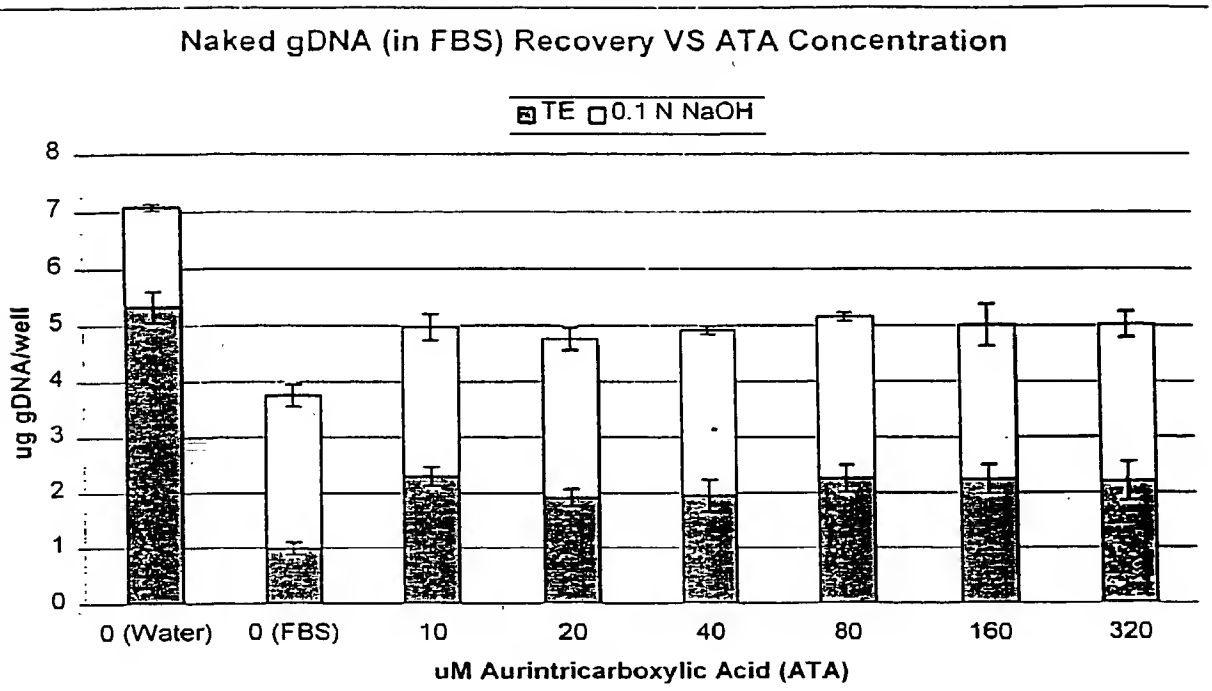


Figure 18

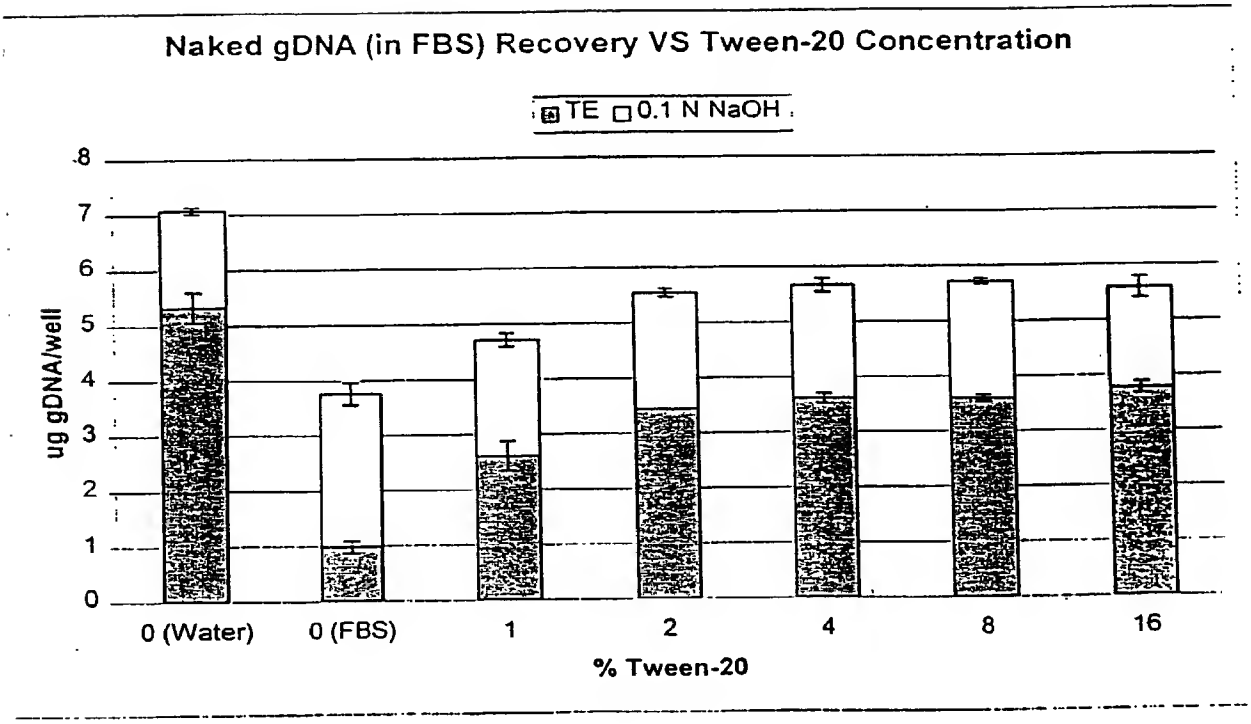

Naked gDNA (in FBS) Recovery VS Tween-20 Concentration
TE
0.1 N NaOH
ug gDNA/well
8
7
6
5
4
3
2
1
0
0 (Water)
0 (FBS)
1
2
4
8
16
% Tween-20

Figure 19

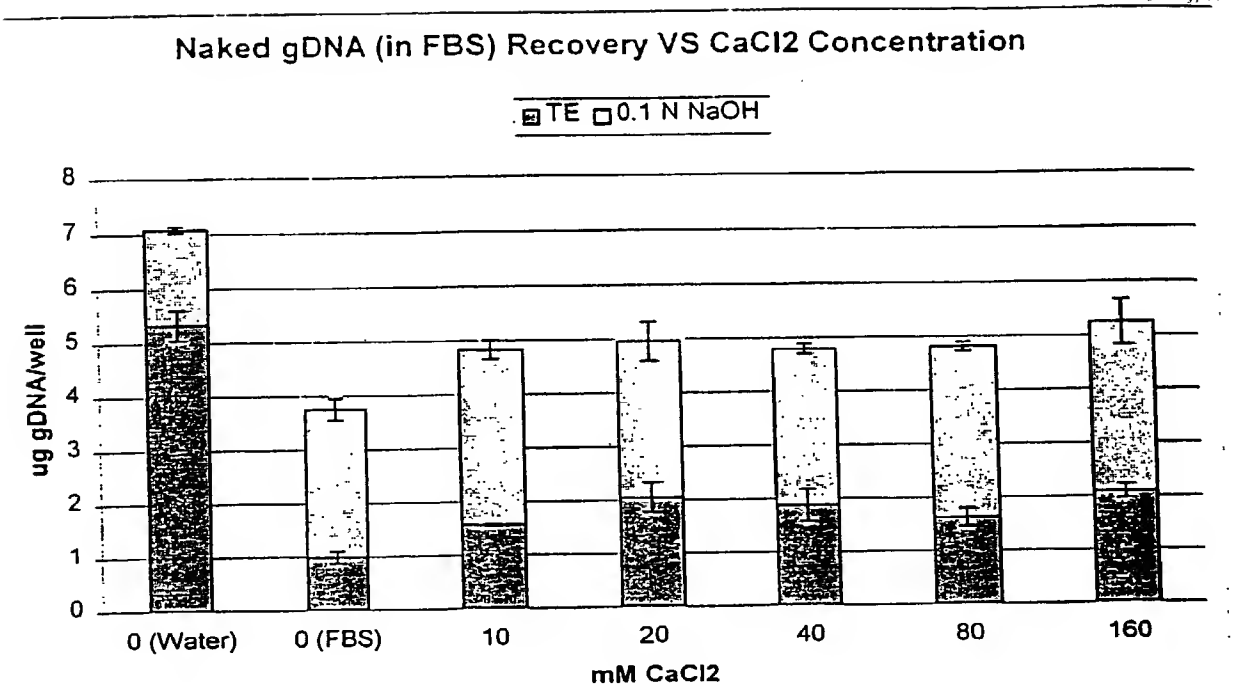

Naked gDNA (in FBS) Recovery VS CaCl2 Concentration
TE
0.1 N NaOH
ug gDNA/well
8
7
6
5
4
3
2
1
0
0 (Water)
0 (FBS)
10
20
40
80
160
mM CaCl2

Figure 20

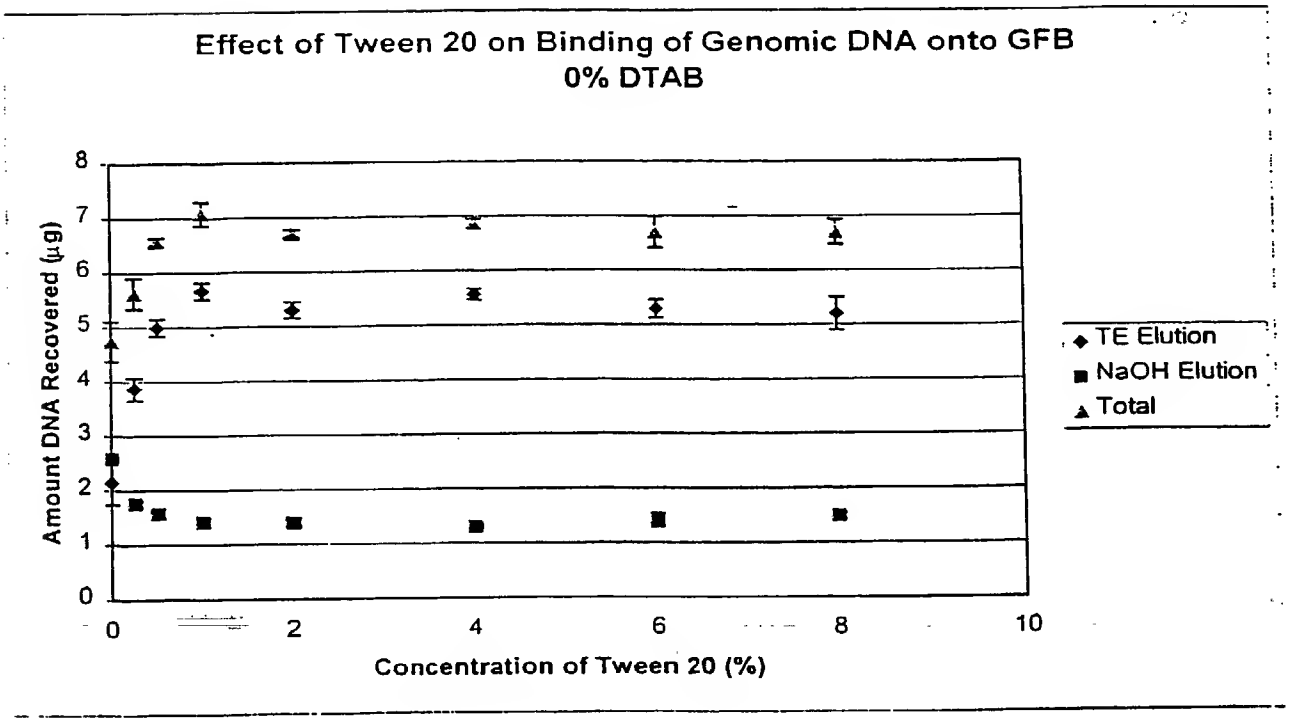

Effect of Tween 20 on Binding of Genomic DNA onto GFB
0% DTAB
Amount DNA Recovered (µg)
0
1
2
3
4
5
6
7
8
0
2
4
6
8
10
Concentration of Tween 20 (%)
TE Elution
NaOH Elution
Total

Figure 21

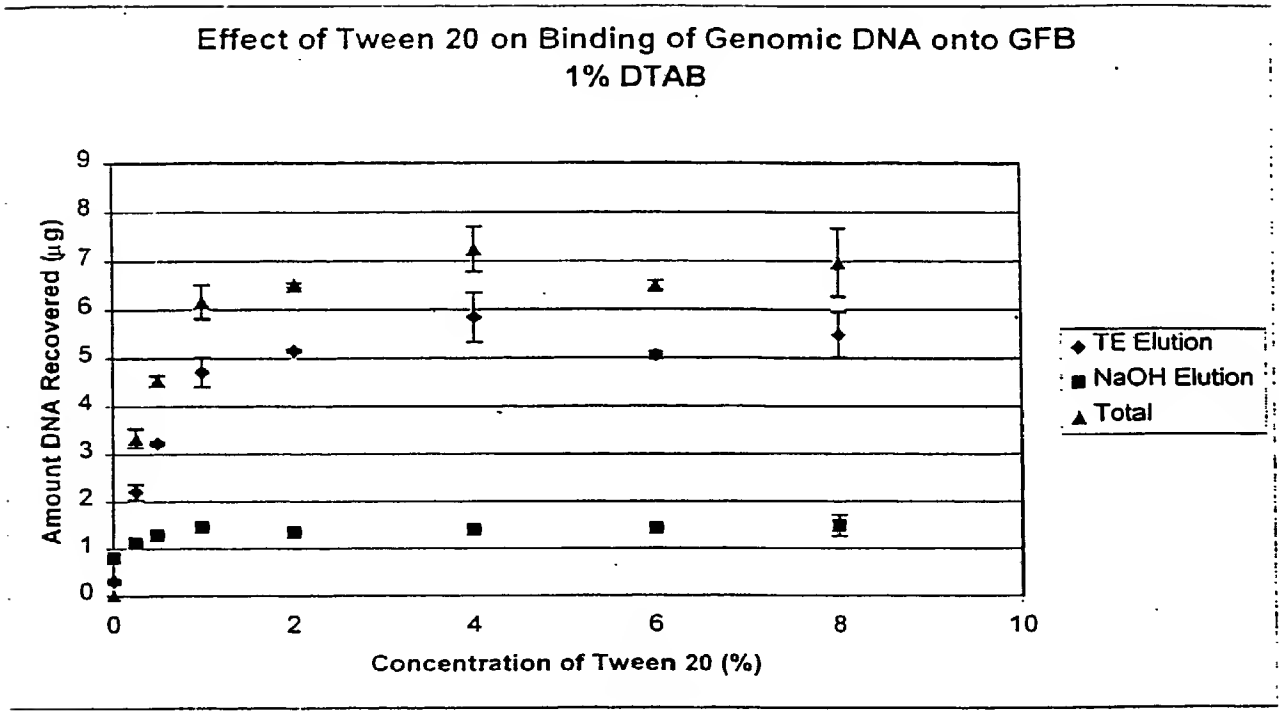

Effect of Tween 20 on Binding of Genomic DNA onto GFB
1% DTAB
Amount DNA Recovered (µg)
0
1
2
3
4
5
6
7
8
9
0
2
4
6
8
10
Concentration of Tween 20 (%)
TE Elution
NaOH Elution
Total

Figure 22

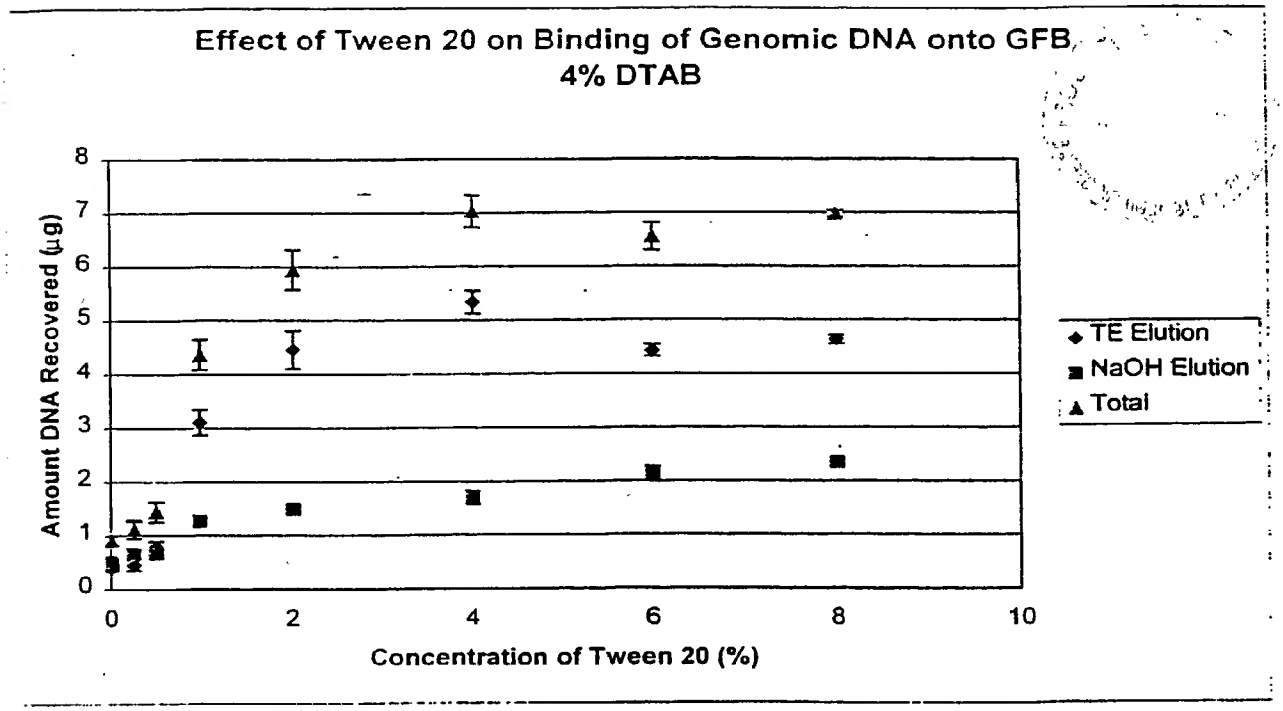


Figure 23

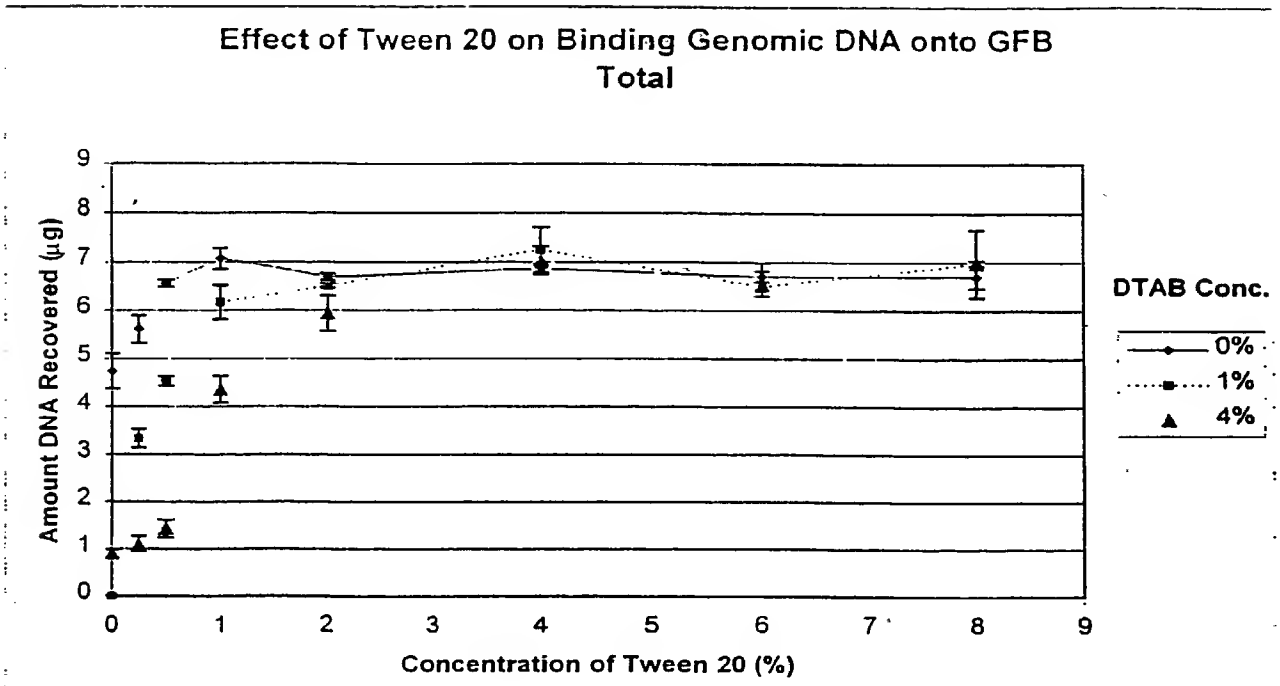


Figure 24

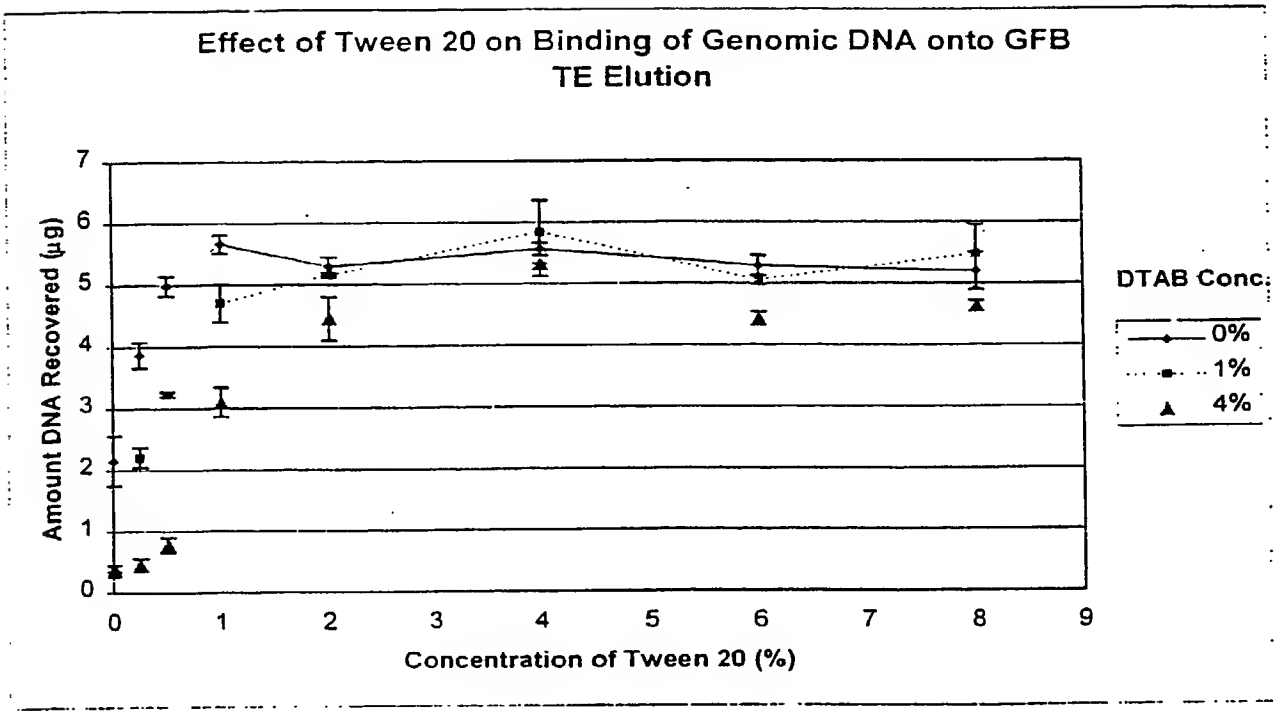

Effect of Tween 20 on Binding of Genomic DNA onto GFB
TE Elution
Amount DNA Recovered (µg)
0
1
2
3
4
5
6
7
0
1
2
3
4
5
6
7
8
9
Concentration of Tween 20 (%)
DTAB Conc.
0%
1%
4%

Figure 25

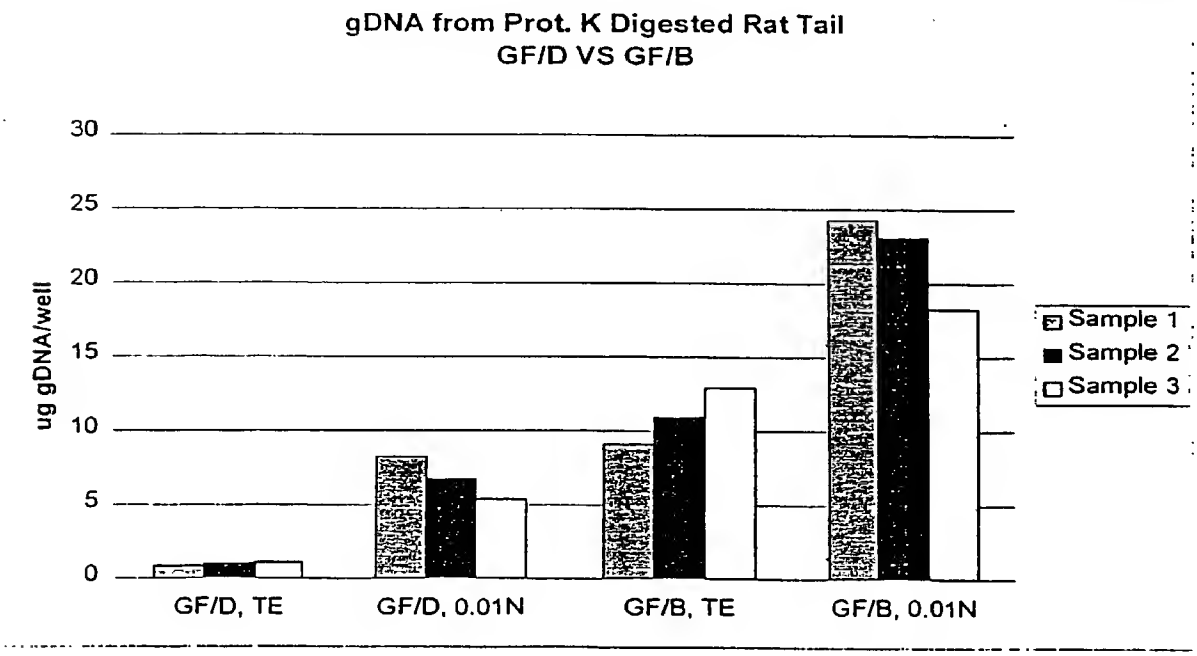


Figure 26

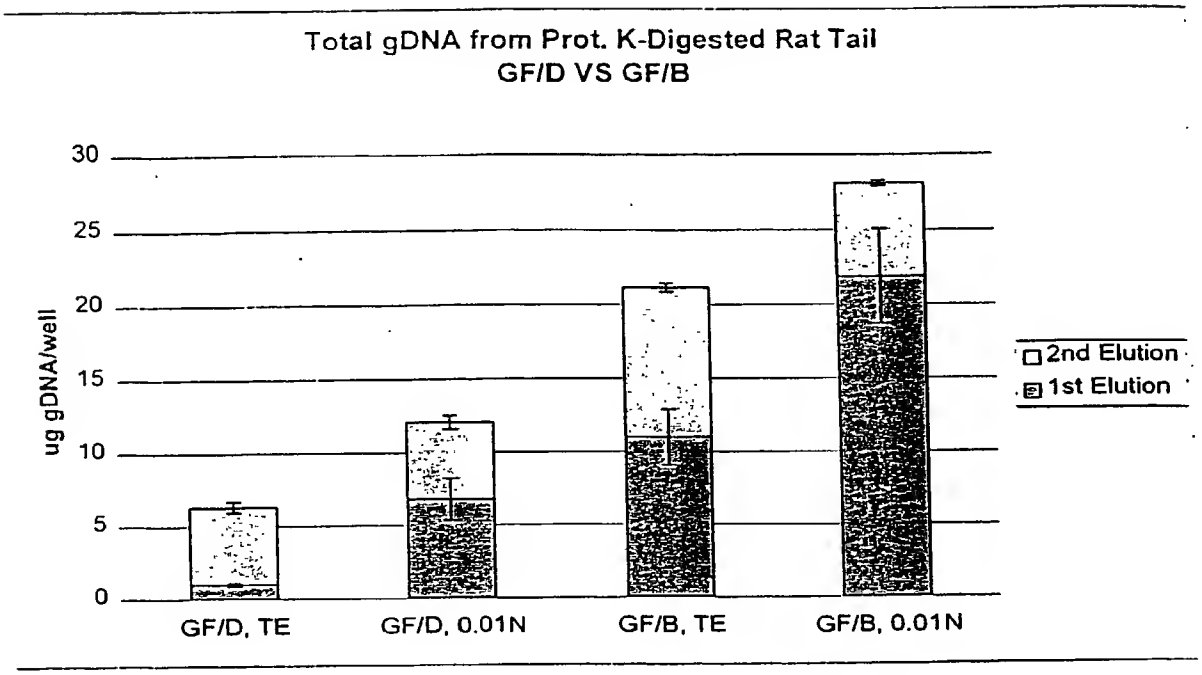
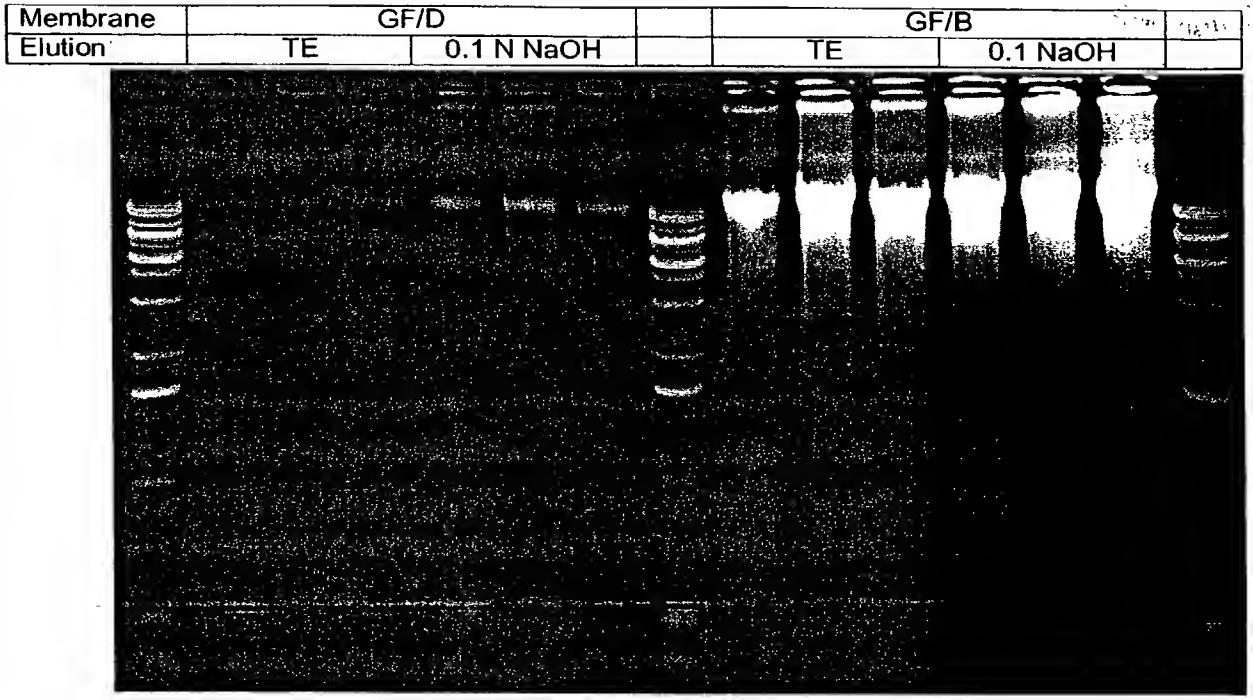

Total gDNA from Prot. K-Digested Rat Tail
GF/D VS GF/B
ug gDNA/well
30
25
20
15
10
5
0
GF/D, TE
GF/D, 0.01N
GF/B, TE
GF/B, 0.01N
2nd Elution
1st Elution

Figure 27



Genomic DNA from 50 mg rat tail sections digested with 1 mg of Prot. K & 1% DTAB and bound onto GF/B and GF/D membranes under 3.75 M GuSCN and 4.5 % Tween 20. The gDNA was finally eluted with of 150 mL of 1X TE and 0.01 N NaOH solutions and 20 mL was used for gel electrophoresis (1 % agarose).

Figure 28

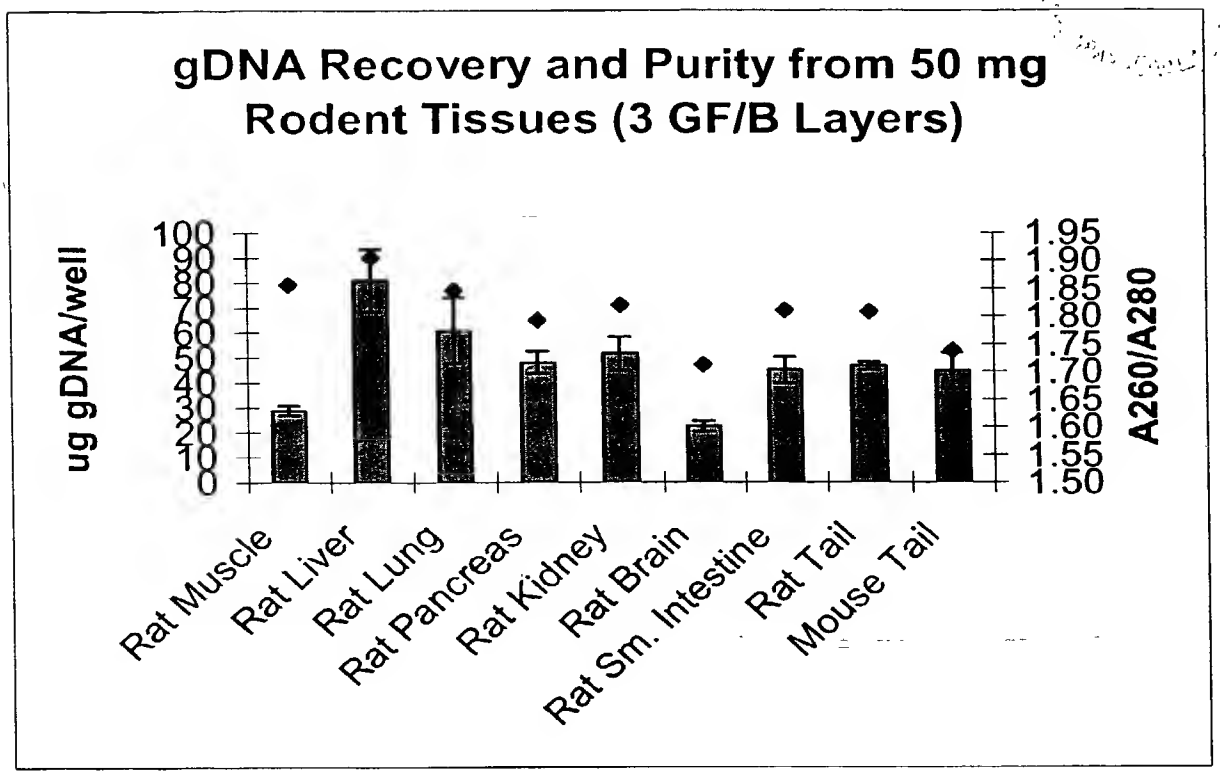
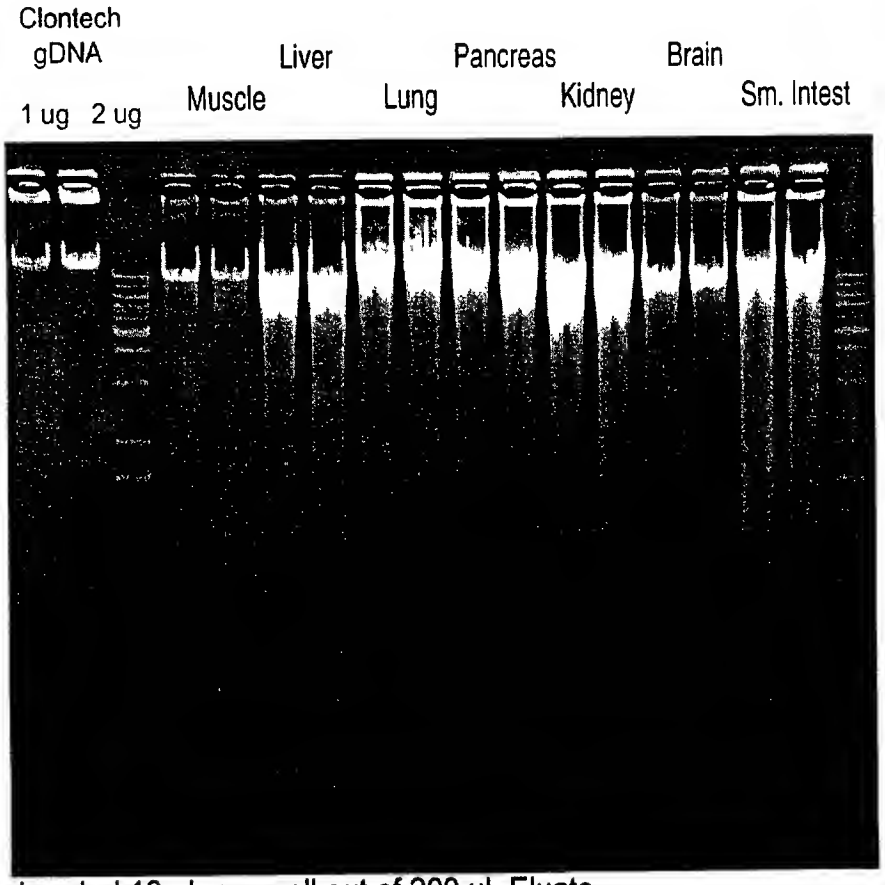


Figure 29

gDNA from 50 mg Rat Tissues



Loaded 10 uL per well out of 200 uL Eluate

gDNA fr. 50 mg Rodent Tails

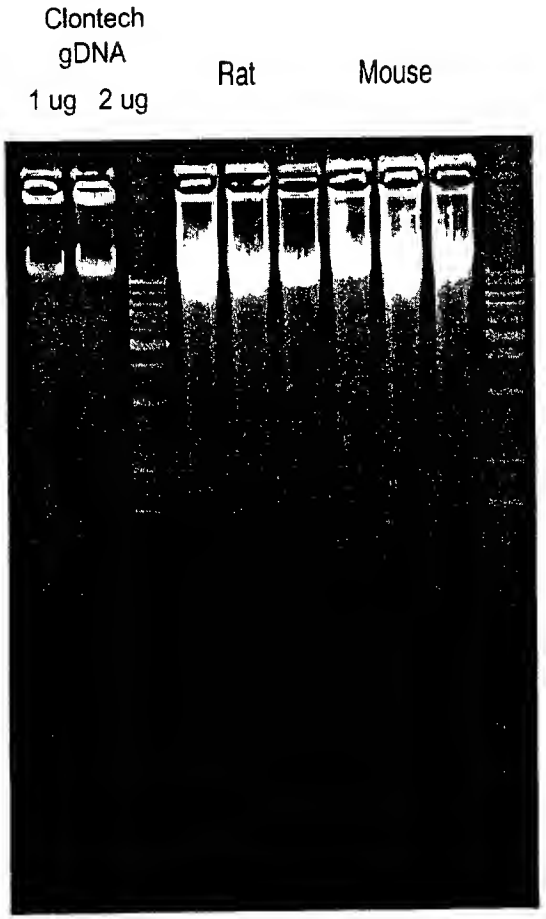


Figure 30